UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/987,259	11/14/2001	Toshitaka Aoyagi	401452	6838

23548 7590 11/28/2003

LEYDIG VOIT & MAYER, LTD
700 THIRTEENTH ST. NW
SUITE 300
WASHINGTON, DC 20005-3960

EXAMINER	
JACKSON, CORNELIUS H	

ART UNIT	PAPER NUMBER
2828	

DATE MAILED: 11/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Advisory Action	Application No.	Applicant(s)
	09/987,259	AOYAGI ET AL.
	Examiner	Art Unit
	Cornelius H. Jackson	2828

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED 12 November 2003 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE. Therefore, further action by the applicant is required to avoid abandonment of this application. A proper reply to a final rejection under 37 CFR 1.113 may only be either: (1) a timely filed amendment which places the application in condition for allowance; (2) a timely filed Notice of Appeal (with appeal fee); or (3) a timely filed Request for Continued Examination (RCE) in compliance with 37 CFR 1.114.

PERIOD FOR REPLY [check either a) or b)]

a) ☒ The period for reply expires 3 months from the mailing date of the final rejection.

b) ☐ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection. ONLY CHECK THIS BOX WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

1. ☐ A Notice of Appeal was filed on _____. Appellant's Brief must be filed within the period set forth in 37 CFR 1.192(a), or any extension thereof (37 CFR 1.191(d)), to avoid dismissal of the appeal.

2. ☐ The proposed amendment(s) will not be entered because:

   (a) ☐ they raise new issues that would require further consideration and/or search (see NOTE below);

   (b) ☐ they raise the issue of new matter (see Note below);

   (c) ☐ they are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or

   (d) ☐ they present additional claims without canceling a corresponding number of finally rejected claims.

   NOTE: _____.

3. ☐ Applicant's reply has overcome the following rejection(s): _____.

4. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).

5. ☒ The a)☐ affidavit, b)☐ exhibit, or c)☒ request for reconsideration has been considered but does NOT place the application in condition for allowance because: *see attached*.

6. ☐ The affidavit or exhibit will NOT be considered because it is not directed SOLELY to issues which were newly raised by the Examiner in the final rejection.

7. ☐ For purposes of Appeal, the proposed amendment(s) a)☐ will not be entered or b)☐ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.

   The status of the claim(s) is (or will be) as follows:

   Claim(s) allowed: _____.

   Claim(s) objected to: _____.

   Claim(s) rejected: _____.

   Claim(s) withdrawn from consideration: _____.

8. ☐ The drawing correction filed on _____ is a)☐ approved or b)☐ disapproved by the Examiner.

9. ☐ Note the attached Information Disclosure Statement(s)(PTO-1449) Paper No(s). _____.

10. ☐ Other: _____.

Paul J
SPE 2828

Response to Arguments

1. Applicant's arguments filed 19 November 2003 have been fully considered but they are not persuasive.

Applicant argued, "All claims were rejected pursuant to 35 USC 112, second paragraph as indefinite. The Examiner took the view that claim 1 expresses both a broad range and an embedded narrower range, leading to confusion as to the limits of the claim. Further, the Examiner made calculations and asserted that the two allegedly disclosed ranges are not consistent with each other. Both grounds of rejection are erroneous."

In response, Claim 1 expresses both a broad range and an embedded narrower range since the broad recitation that L does not exceed 260 μm and κ is at least 150 cm^{-1}, and the claim also recites $5.6>\kappa L>3.0$ which is the narrower statement of the range/limitation, since all the values of κ or L given above when multiplied together does not yield the result $5.6>\kappa L>3.0$. And although Examiner's initial calculations were off, the fact that when L=0 shows that the disclosed ranges are not consistent with each other.

Applicant argued, "At page 3 of the Office Action, the same three references referred to in the rejection of the previous Office Action are listed. However, there are no comments in the Office Action mailed August 26, 2003 concerning the patent to Suzuki. Thus, it is considered that the citation of Suzuki at the next-to-last line of page 3 of the Official Action is an inadvertent error and that the rejection based upon Suzuki has been

withdrawn. Based upon the comment of the Office Action at pages 4 and 5, it is understood that the claims are all rejected as obvious over Takahashi (U.S. Patent 5,960,023) in view of Nakajima et al. (U.S. Patent 5,412,496, hereinafter Nakajima). If the rejection has been misunderstood, then a new Office Action, even if still a final rejection, should be issued, based upon this response. The rejection as understood, i.e., Takahashi in view of Nakajima, is respectfully traversed."

In response, Applicant is correct in their understanding that the claims are all rejected as obvious over Takahashi (U.S. Patent 5,960,023) in view of Nakajima et al. (U.S. Patent 5,412,496) only and the citation of Suzuki at the next-to-last line of page 3 of the Official Action is an inadvertent error and that the rejection based upon Suzuki has been withdrawn.

Applicant argued, "[T]he requirement that κL is approximately equal to 4 does not establish that the laser of Takahashi, if modifiable by the cited parts of Nakajima, would fall within the scope of claim 1. Thus, the conclusion drawn by the Examiner does not establish *prima facie* obviousness as to any claim because it does not establish that the hypothetical semiconductor laser constructed from the two patents would meet the limitations of any pending claim."

In response, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would

have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

Applicant argued, "Since it is not apparent whether Takahashi as proposed to be modified by Nakajima would fall within the scope of claim 1, one must probe further into the discloses of Takahashi and Nakajima to determine whether *prima facie* obviousness can be properly asserted based upon the hypothetical relied upon in the rejection. The only quantitative information in the two patents, and not already mentioned is that Takahashi describes laser chips that are square and have an edge length of 250μm and a κL product of 35cm^{-1}. It is apparent that the length of the diffraction grating in these laser chips must be less than 260μm, and thereby within one of the quantitative limitations of claim 1. However, the product κL of these lasers is so far outside the scope of claim 1 that one of skill in the art would find no teaching in Takahashi, even as modified with Nakajima's κL product of approximately 4, that would direct one toward the claimed invention. The foregoing graph clearly validates this conclusion and demonstrates that *prima facie* obviousness of claim 1 cannot be properly asserted based upon the limited quantitative data disclosed in Takahashi and Nakajima."

In response, the disclose of Nakajima would direct one of ordinary skill in the art toward the claimed invention, since Nakajima teaches it is desirable for the product of κL to fall within the given range **see col. 3, lines 44-47**.

Applicant argued, "The references can be evaluated from a different perspective, relying upon the disclosure of the present patent application. As described in this application, the objective of the invention is to provide a semiconductor laser operating

with a high efficiency, i.e., a low threshold current density, capable of operating at a high speed with a stable single axial mode characteristic. The invention as defined by the claims achieves all of those objectives. By contrast, neither Takahashi nor Nakajima describe any means of achieving a high relaxation oscillation frequency of a laser, an essential characteristic to achieve high frequency operation. The necessity of such a characteristic is demonstrated in a publication, published since the filing of the present patent application, in which the first named author is the first named inventor of the present patent application."

In response, the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

Applicant argued, "[T]he Examiner relied upon *In re Aller*, 105 USPQ 233, 235 (CCPA 1955) as supporting his assertion that the invention is a mere optimization. In making this assertion, the Examiner stated that "since Takahashi teaches each and every structural element of the present invention," the holding of *In re Aller* applies to show that the claims are not patentable. This position is factually wrong as demonstrated by the Office Action itself. No claim is rejected as anticipated by Takahashi, even excluding the quantitative limitations of claim 1. Rather, the basis of the rejection is the asserted modification of Takahashi with Nakajima. In other words, Takahashi does not teach each and every structural element of the claimed invention. If there were such a teaching there would have been no need to cite or rely on Nakajima.

Therefore, the premise of this ground of rejection is clearly erroneous and the rejection should be withdrawn."

In response, Applicant is correct, since Takahashi fails to teach the multiple quantum well structure.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cornelius H. Jackson whose telephone number is (703) 306-5981 [(703) 272-1942, after January 2004]. The examiner can normally be reached on 8:00 - 5:00, Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on (703) 308-3098 [(703) 272-1941, after January 2004]. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-7722.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

CHJ

chj

Paul Ip
SPE 2818